

In response, the applicant has made the appropriate correction in FIG. 1A to identify the arrow as “A”, in the accompanying Request for Approval of Drawing Changes.

**35 U.S.C. 103(a) Rejections: Claims 1 and 4-5**

The Examiner has rejected claims 1, 4 and 5 under 35 U.S.C. § 103(a) as being unpatentable over Kuroha et al. (U.S. 6,028,650 – filed July 19, 1997 – issued February 22, 2000).

The Examiner states with respect to claim 1 that Kuroha et al, column 3, lines 19-30, discloses, for a liquid crystal display panel, that the width of the gate lines can be reduced and that the gate lines can be made of a material such as aluminum or gold having a low resistance. The Examiner concludes that it would have been obvious to reduce the width of the gate signal line as the distance from the gate input portion increases as taught by Kuroha to reduce the capacitance of the auxiliary capacitor portions, to increase numerical aperture and to achieve uniform feed-through voltage in the liquid crystal panel.

In response, the applicant notes that claim 1 recites in part auxiliary capacitor portions each additionally coupled with a pixel electrode of one of said pixel, the width of said gate signal line becoming narrower and thereby capacitance of said auxiliary capacitor portions becoming smaller as the distance from said gate signal input portion becomes larger.

As recited by claim 1, and as illustrated in Fig. 3A of the present invention, the effective width  $W_a$  of the auxiliary capacitor portion 17 is reduced as the width of the gate signal lines 13 is reduced. (The position and width of pixel electrode 16 remains fixed.) *Therefore, the area of the aperture 18 increases, so that the luminance of backlighting by the backlight portion decreases with the distance from the gate signal input portion 2.*

In contrast, in Fig. 5A of Kuroha, it is the width of the transparent pixel electrode {indium tin oxide layer 6(Ea)} which is varied jointly with the width of the passivation layer 7 to reduce the auxiliary capacitor portion while the width and position of the conductive layer 2(GL1) gate line remains fixed. *The result is that the area of the opening does not increase in Kuroha et al.*

The applicant respectfully maintains that, contrary to the Examiner's assertion, Kuroha et al does not disclose, teach or suggest that each gate signal line becomes narrower as the distance from the gate signal input portion becomes larger. Therefore, Kuroha does not teach or suggest the limitations of 1 and 4-5. In the present invention recited by claims 1 and 4-5, brightness of each pixel becomes higher if the luminance of backlighting by a backlight portion is uniform throughout the image screen. As a result, claims 1 and 4-5 patentably distinguish over Kuroha et al.

### **35 U.S.C. 103(a) Rejections: Claims 2, 3, 6, 7 and 9-14**

The Examiner has rejected claims 2, 3, 6, 7 and 9-14 as being unpatentable over Kuroha et al., as applied to claims 1, 4 and 5 above, and further in

view of Taniguchi et al. (U.S. 6,334,689 B1 – filed February 25, 1999 – issued January 1, 2002).

The Examiner cites Taniguchi et al. as disclosing in column 2, line 64, to column 3, line 4, and in Figure 3, an optical scattering layer 3, consisting of a plurality of ink dots 8, formed of optical scattering materials, such as titanium oxide, arranged on the surface of light guide plate 2. As the distance increases from light source 1, the optical intensity from light source 1 is reduced. Therefore, as the distance increases from light source 1, the area of ink dots 8 is increased.

The Examiner concludes that it would have been obvious to dispose the light source 1 of Taniguchi's backlight portion on the side of the gate signal input portion {conductive layer 2(GL1)} of Kuroha et al.'s LCD panel so that luminance of light of the backlight portion decreases as the distance from the gate input portion increases, so as to obtain a high image luminance and a high image display quality.

In response, the applicant first calls to the Examiner's attention that the rejection of claim 14 under 35 U.S.C. § 103(a) appears to be an error, since the Examiner later states with respect to the rejections under 35 U.S.C. 112, second paragraph, that claims 8 and 14 are neither allowed nor rejected over prior art because the scope of those claims is unclear. Furthermore, the applicant has now cancelled both claims 8 and 14, thus rendering moot any rejection of claim 14 over prior art.

In the present invention recited by claim 1, the width of each gate signal line becomes narrower (and thereby an area of an aperture portion of each

pixel becomes larger), as the distance from the gate signal input portion becomes larger. Claim 2 recites the LCD device with a backlight portion for illuminating the liquid crystal display panel from the backside thereof, luminance of backlight by the backlight portion becomes lower as the distance from the gate signal input portion becomes larger.

The applicant respectfully maintains that neither Kuroha nor Taniguchi et al, taken alone or in combination, disclose, teach, or suggest luminance of backlight by the backlight portion becoming lower as the distance from the gate signal input portion becomes lower, as recited by claim 2. With respect to claim 3, neither Kuroha nor Taniguchi et al taken alone or in combination, disclose, teach or suggest that an area of an aperture portion of a pixel becomes larger as the distance from the gate signal input portion becomes larger. In the present invention of claim 3, by using such inclination of luminance, a liquid crystal display having a display luminance greater than that of the prior art is realized.

Taniguchi is characterized in that luminance of backlight can be high and uniform, as disclosed by Taniguchi et al in column 8, lines 28-30: "Uniform brightness can be gained over the entire liquid crystal display by setting the reflection validness area ratio according to this distribution." Taniguchi et al does not disclose the inclination of luminance of light from a backlight source.

Claim 14 has been cancelled. Therefore, claims 2, 3, 6, 7 and 9-13 patentably distinguish over Kuroha in view of Taniguchi et al.

The foregoing Amendment and Remarks, in conjunction with the accompanying Request for Approval of Drawing Changes, establish the patentable nature of all of the claims remaining in the application, i.e., claims 1-7 and 9-13. Claims 8 and 14 have been cancelled. No new matter has been added, wherefore, early and favorable reconsideration and issuance of a Notice of Allowance are respectfully requested.

Respectfully submitted,

A handwritten signature in black ink that reads "Anthony N. Fresco". The signature is written in a cursive, flowing style.

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Specification:**

**The paragraph on page 1, lines 4-10, has been amended as follows:**

Field of the Invention

The present invention relates generally to a liquid crystal display device, and more particularly to a liquid crystal display device which has uniform [feedthrough] feedthrough voltage components, a high image luminance, and high image display quality.

**In the Claims:**

**Claims 8 and 14 have been cancelled.**